

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state in a vehicle equipped with a run-flat tire system comprising run-flat tires and detection units each arranged in the respective tire and for measuring a temperature of the tire, wherein when at least one run-flat tire among the run-flat tires is continuously run at the run-flat state by an abnormal lowering of an internal pressure, the temperature of the run-flat tire continuously running at the run-flat state is measured, and a residual lifetime of the run-flat tire is judged based on the measured temperature,

wherein the residual lifetime is judged by a runnable time and/or distance calculated on the basis of the measured temperature until a trouble state of the run-flat tire,

wherein the temperature of the tire is an atmosphere temperature inside the tire,

wherein after the previous setting of a limit temperature being statistically the occurrence of the trouble state when at least one run-flat tire among the run-flat tires is continuously run at the run-flat state by an extreme lowering of the internal pressure, the atmosphere temperature inside tire is measured in the run-flat tire during the continuous running at the run-flat state, and a time predicted to reach to the limit temperature is calculated by using the measured values of the atmosphere temperature inside tire and data calculated from these measured values of the atmosphere temperature inside tire, and a calculated running time and/or running distance are rendered into a runnable time and/or distance up to the occurrence of the trouble state in the run-flat tire,

wherein after a relationship of the atmosphere temperature inside tire T to be measured with respect to a continuously running time t is previously determined as a function f(t) under various run-flat running conditions, when the run-flat tire is continuously run at the present run-flat running condition from a time point of measuring the atmosphere temperature inside tire, the running time and/or the running distance predicted to reach to the limit temperature are calculated by using the function f(t),

wherein the function f(t) is approximately expressed by $f(t) = T_0 - A \exp(-Bt)$, wherein T_0 is a predicted saturation reaching temperature and A and B are coefficients, and when the run-flat tire is continuously run at the present run-flat running condition from a time point of measuring the atmosphere temperature inside tire, the running time and/or the running distance predicted to reach to the limit temperature are calculated by using the function f(t).

2. (previously presented): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state according to claim 1, wherein the residual lifetime is judged on the basis of the increasing of the measured temperature.

3. - 7. (canceled).

8. (currently amended): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state according to claim 17, wherein the coefficient B is a constant value, and the coefficient A and the predicted saturation reaching temperature T_0 are calculated from the measured temperature and a rate of temperature change thereof per unit time, and when the run-flat tire is continuously run at the present run-flat running condition from a

time point of measuring the atmosphere temperature inside tire, the running time and/or the running distance predicted to reach to the limit temperature are calculated by using the function $f(t)$ and substituting the calculated values therefor.

9. (previously presented): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state according to claim 8, wherein the function $f(t)$ differs bordering a transition temperature which is a given temperature lower than the limit temperature, and is approximately expressed by $f(t) = T_0 - A \exp(-Bt)$, wherein T_0 is a predicted saturation reaching temperature and A and B are coefficients when the atmosphere temperature inside tire is a temperature region lower than the transition temperature, and a case that the predicted saturation reaching temperature T_0 is lower than the transition temperature is judged as a safety mode capable of continuously running at the run-flat state over a long time, and a case that the predicted saturation reaching temperature T_0 is higher than the transition temperature is judged as a danger mode of predicting the occurrence of the trouble state during continuous running at the run-flat state, and when the run-flat tire is continuously run at the present run-flat running condition from a time point of measuring the atmosphere temperature inside tire, the running time and/or the running distance predicted to reach to the limit temperature are calculated by using the function $f(t)$.

10. (previously presented): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state according to claim 9, wherein the function $f(t)$ is approximately expressed by $f(t) = T_1 + Ct$, wherein T_1 is a measured temperature and C is a change ratio of temperature measured per unit time, and when the run-flat tire is continuously

run at the present run-flat running condition from a time point of measuring the atmosphere temperature inside tire, the running time and/or the running distance predicted to reach to the limit temperature are calculated by using the function $f(t)$.

11. (previously presented): A process for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state according to claim 1, wherein the run-flat tire is a so-called side-reinforced run-flat tire in which a reinforcing rubber is arranged on at least a sidewall portion of the tire at an inner surface side thereof.

12. (previously presented): A record medium recording a program for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state, in which the program is recorded to conduct the process according to claim 1 with a computer.

13. (previously presented): An apparatus for judging a residual lifetime of a run-flat tire during continuous running at a run-flat state by conducting the process according to claim 1, which comprises detection units arranged in the respective run-flat tires and capable of measuring at least an atmosphere temperature inside tire in these tires, calculation means for at least calculating a running time and/or a running distance predicted to reach to the limit temperature from the measured value of the atmosphere temperature inside tire when the run-flat tire is continuously run at the present run-flat running condition, and memory means for at least memorizing basic data to be compared with data calculated by the calculation means.

14 -21. (canceled).